

## 5.0 SUMMARY OF FISCAL AND ECONOMIC ANALYSIS OF THE PROPOSED PROJECT

### 5.1 INTRODUCTION AND APPROACH

The purpose of this section is to summarize the potential economic and fiscal impacts of the proposed project and to present the related background information used to assess these impacts. The proposed project would affect OWTS owners because their on-site wastewater treatment system (OWTS) siting, design, operating, and maintenance costs would increase to varying degrees under the different types of situations described in this section. Some business owners, primarily new restaurants using OWTS, also would experience cost impacts; many other types of businesses that serve OWTS owners would experience income and employment impacts. Businesses that would benefit include engineering firms that provide OWTS siting and design services, the manufacturers of OWTS with supplemental treatment units and other types of OWTS and their components, businesses that sample and test water quality, and septic tank inspectors and septage pumpers. The proposed project would also result in some fiscal impacts on local and regional governments, but these are expected to be minor.

The remainder of this section describes these potential impacts and related background information in more detail and is a summary of *Economic and Fiscal Effects of the Proposed Statewide Regulations for Onsite Wastewater Treatment Systems* (TCW Economics 2008), which can be found in Appendix G of this draft environmental impact report (DEIR). Appendix G contains more supporting information, including more detailed descriptions of the assumptions, cost impacts, estimates of the number of households using OWTS, and methodologies associated with the economics analysis.

As required by the California Environmental Quality Act (CEQA), the analysis in EIRs focuses on the physical impacts of a project on the environment. CEQA does not require the economic or fiscal effects of a project to be analyzed. Such a discussion typically does not appear in an EIR; however, this chapter has been included for informational purposes in response to concerns raised during the scoping phase for this DEIR. The scope of the economics and fiscal analysis summarized in this section is intended to not only address concerns raised during the CEQA scoping process, but to also provide State Water Board staff with the information they need to complete the California Department of Finance's (DOF's) Form 399 process. This process is described in more detail in Appendix G and is designed to help DOF better understand the economic and fiscal impacts of draft statewide regulations for OWTS (draft regulations), with an emphasis on how draft regulations might affect businesses and employment in California.

The analyses on which this section is based considered the effects of the draft regulations concerning waters both within 303(d)-listed areas and outside of these areas. The 303(d)-listed water bodies where economic effects were evaluated are northern Santa Monica Bay beaches, Malibu Creek watershed, Santa Clara River, Lake Elsinore, Rainbow Creek, and Canyon Lake. For evaluating effects concerning these 303(d)-listed areas, estimates of the number of affected properties were developed by the State Water Resources Control Board's (State Water Board's) staff. For evaluating effects outside of the 303(d)-listed areas, case study analyses were conducted of two counties that represent rural and urban regulatory and socioeconomic conditions in the state: Merced County and Los Angeles County, which both fell within the midrange of percentages of households using OWTS in relatively rural and urban counties, respectively. These percentages are described below. These case study analyses were conducted to assess the relative cost burdens and industry opportunities associated with the draft regulations for counties similar to the case study counties.

The analyses of cost compliance and effects on businesses related to OWTS were projected over a 5-year period beginning in 2009 and ending in 2013. Baseline conditions consisting of estimates of annual costs and benefits under existing and future no-project conditions were developed and aggregated over this 5-year time horizon. The economic analyses focused on comparing aggregated costs and benefits under proposed project conditions to

future no-project conditions (also referred to as future baseline conditions). For the purposes of consistency with other technical evaluations presented in this DEIR, annual costs and benefits of the proposed project also were compared to existing 2008 conditions. The analysis of fiscal impacts focused on assessing the incremental costs incurred by local agencies and the regional water quality control boards (Regional Water Boards) compared to existing conditions.

## 5.2 BACKGROUND INFORMATION, INCLUDING BASELINE CONDITIONS

This section presents background information for assessing the economic and fiscal impacts of the proposed project, including information used to establish the assessment's existing baseline conditions (2008) and future baseline conditions (2013). Data presented in this section represent the most current data available.

### 5.2.1 HOUSEHOLDS USING OWTS IN CALIFORNIA

From 1970 through 1990, the U.S. Census Bureau, as part of its decennial housing and population census, collected information on the number of housing units using septic systems for sewage disposal. (This information was not collected as part of the 2000 Census.) Table 5-1 shows the results of the census surveys for 1970, 1980, and 1990 for California. The percentage of occupied year-round housing units using septic systems in California declined between 1970 and 1980, but stabilized between 1980 and 1990. As Table 5-1 shows, the percentage of housing units on septic systems fell from 12.2% to 10.0% between 1970 and 1980 but declined only slightly, to 9.8%, by 1990. Excluding seasonal and vacant housing units, approximately 1,092,200 housing units were hooked up to septic systems in 1990.

<b>Table 5-1</b> <b>Number of Housing Units with On-Site Wastewater Treatment Systems in California, 1970–1990</b>			
Year	Number of Housing Units with Septic Tanks or Cesspools	Percent of Total Housing Units	Percent of Total Households
1970	853,013	12.2%	12.9%
1980	920,690	10.0%	10.7%
1990	1,092,174	9.8%	10.5%

Note: Housing unit totals do not include seasonal and vacant housing units.  
Sources: U.S. Census Bureau 2002, 2006a.

### HOUSING UNITS USING OWTS IN 1999 AND 2000

A 2003 study jointly prepared by the California Wastewater Training & Research Center at California State University, Chico, (CSUC) and the U.S. Environmental Protection Agency (EPA) estimated that about 1,202,300 housing units were using septic systems in 1999. According to the study, this estimate was prepared by adding the number of OWTS installed since 1990 to the number of systems reported by the 1990 Census. The source for the number of systems installed since 1990 came from a survey of officials of public agencies that have jurisdiction for approving and inspecting OWTS in California. The CSUC-EPA study estimated that 9.9% of all housing units in California were using septic systems, virtually the same as the percentage reported by the 1990 U.S. Census (9.8%; see Table 2 in Appendix G).

For purposes of comparison, the number of housing units in California using OWTS in 2000 was estimated using data from the 1990 and 2000 U.S. Census. Starting with the number of existing housing units statewide in 2000, as reported by the 2000 U.S. Census, it was then assumed that statewide OWTS usage in 2000, on a percentage basis, was the same as the percentage in 1990 (9.8%). This percentage was applied to the total number of housing units statewide in 2000 to arrive at an estimate of the total number of housing units using OWTS within the state. These units were then distributed among the counties based on each county's percentage share of statewide

OWTS in 1990. This methodology resulted in an estimated total of 1,192,900 housing units using OWTS in California in 2000, a result that is only about 0.8% lower than the CSUC-EPA estimate of 1,202,300 housing units with OWTS in 1999. Because the statewide estimates produced by the two methodologies are similar, 1.2 million OWTS was used as the total number of OWTS in use statewide in 2000.

Because of concerns about the accuracy of the survey results on which the CSUC-EPA study based its estimates, both the Census-based and CSUC-EPA estimates were used as a basis for projecting OWTS usage at the county level for both existing (2008) conditions and future baseline (2013) conditions.

## EXISTING BASELINE (2008) CONDITIONS

Based on the Census and CSUC-EPA estimates of OWTS usage in 1990 and 1999, two sets of projections of OWTS usage in 2008 were prepared. Both sets of projections, hereafter referred to as the Census-based and CSUC-EPA-based projections, used estimates of the statewide percentage of housing units using OWTS as the basis for estimating OWTS usage in 2008. Additional information describing the methods employed in developing the 2008 estimates is provided in Appendix G.

As Table 5-2 shows, the Census-based methodology resulted in a projection of 1,323,500 housing units using OWTS in 2008, and the CSUC-based method resulted in a 2008 projection of 1,344,300 housing units using OWTS in California, a difference of about 1.6%.

<b>Table 5-2</b> <b>Projected Housing Units with OWTS in 2008 and 2013</b>						
County	2008 Projections			2013 Projections		
	Total Housing Units <sup>1</sup>	Units with OWTS		Total Housing Units <sup>4</sup>	Units with OWTS	
		Census-Based Estimate <sup>2</sup>	CSUC-Based Estimate <sup>3</sup>		Census-Based Projection <sup>5</sup>	CSUC-Based Projection <sup>6</sup>
Alameda	577,988	5,167	5,019	651,149	5,614	5,453
Alpine	1,761	547	616	1,942	594	669
Amador	17,296	9,261	10,734	20,216	10,062	11,662
Butte	95,514	49,857	49,550	105,328	54,168	53,834
Calaveras	27,822	15,727	17,195	31,032	17,087	18,682
Colusa	7,890	2,682	2,803	8,557	2,914	3,046
Contra Costa	397,729	11,418	12,548	445,696	12,405	13,633
Del Norte	11,071	5,553	5,848	12,849	6,033	6,354
El Dorado	84,551	31,337	36,462	92,253	34,047	39,615
Fresno	308,259	46,487	47,925	337,429	50,507	52,069
Glenn	10,729	5,223	5,240	11,219	5,675	5,693
Humboldt	59,492	18,620	18,187	62,098	20,230	19,759
Imperial	54,283	7,793	7,437	63,245	8,467	8,080
Inyo	9,233	2,364	2,450	9,302	2,569	2,662
Kern	274,335	56,882	52,485	300,999	61,801	57,023
Kings	42,254	6,149	6,187	53,451	6,681	6,722
Lake	35,215	15,090	15,041	39,138	16,395	16,342

**Table 5-2**  
**Projected Housing Units with OWTS in 2008 and 2013**

County	2008 Projections			2013 Projections		
	Total Housing Units <sup>1</sup>	Units with OWTS		Total Housing Units <sup>4</sup>	Units with OWTS	
		Census-Based Estimate <sup>2</sup>	CSUC-Based Estimate <sup>3</sup>		Census-Based Projection <sup>5</sup>	CSUC-Based Projection <sup>6</sup>
Lassen	13,047	5,990	6,546	18,330	6,508	7,112
Los Angeles	3,428,202	94,328	89,603	3,538,981	102,484	97,351
Madera	48,582	18,592	19,597	55,217	20,200	21,291
Marin	108,084	9,060	10,372	112,107	9,843	11,269
Mariposa	10,124	6,807	7,097	11,406	7,395	7,711
Mendocino	39,660	20,539	22,944	42,541	22,315	24,928
Merced	85,216	16,935	16,772	99,975	18,400	18,223
Modoc	5,113	3,360	3,662	5,127	3,651	3,979
Mono	13,921	2,281	2,684	15,345	2,478	2,916
Monterey	142,028	23,304	23,653	161,543	25,319	25,699
Napa	54,397	10,381	10,567	61,176	11,278	11,480
Nevada	50,536	23,737	25,704	55,830	25,790	27,927
Orange	1,047,364	8,129	7,501	1,123,108	8,832	8,149
Placer	151,540	25,927	26,070	170,762	28,169	28,324
Plumas	15,023	8,987	10,383	14,838	9,764	11,281
Riverside	779,191	117,230	126,617	873,495	127,367	137,566
Sacramento	564,125	20,161	21,119	659,086	21,905	22,945
San Benito	18,276	5,081	5,583	20,399	5,521	6,066
San Bernardino	693,509	151,096	147,596	760,348	164,162	160,359
San Diego	1,152,920	74,653	80,429	1,275,615	81,108	87,383
San Francisco	360,189	756	0	374,953	822	0
San Joaquin	233,597	31,383	31,345	276,639	34,097	34,056
San Luis Obispo	115,232	29,904	29,855	130,078	32,490	32,436
San Mateo	269,592	7,368	7,111	283,804	8,005	7,726
Santa Barbara	155,467	11,893	12,785	168,614	12,921	13,890
Santa Clara	623,202	21,973	21,245	664,852	23,873	23,082
Santa Cruz	104,444	30,978	29,847	112,648	33,657	32,428
Shasta	78,137	32,230	31,885	87,002	35,017	34,642
Sierra	2,259	1,692	1,701	2,339	1,838	1,848
Siskiyou	23,446	10,557	10,913	23,463	11,470	11,857
Solano	153,620	6,808	6,640	178,168	7,397	7,214

**Table 5-2  
Projected Housing Units with OWTS in 2008 and 2013**

County	2008 Projections			2013 Projections		
	Total Housing Units <sup>1</sup>	Units with OWTS		Total Housing Units <sup>4</sup>	Units with OWTS	
		Census-Based Estimate <sup>2</sup>	CSUC-Based Estimate <sup>3</sup>		Census-Based Projection <sup>5</sup>	CSUC-Based Projection <sup>6</sup>
Sonoma	198,450	49,661	48,483	224,752	53,955	52,675
Stanislaus	180,063	31,161	29,474	199,146	33,856	32,023
Sutter	33,804	12,931	13,050	36,282	14,050	14,178
Tehama	26,472	14,315	15,284	27,462	15,553	16,606
Trinity	8,392	6,500	6,474	8,119	7,062	7,034
Tulare	138,061	37,976	38,283	152,137	41,260	41,594
Tuolumne	30,611	17,825	17,905	34,679	19,366	19,453
Ventura	277,984	17,946	18,674	296,109	19,498	20,289
Yolo	74,893	5,531	5,774	91,935	6,009	6,273
Yuba	27,594	7,408	7,363	29,306	8,049	8,000
Total	13,551,786	1,323,533	1,344,314	14,723,621	1,437,980	1,460,559

Notes and sources:

- <sup>1</sup> Estimated for 2008 by adjusting 2006 county-level housing estimates made by the California Department of Finance (2006) by the average annual population growth rate for each county projected by the California Department of Finance (2004) for the 2000–2010 period.
- <sup>2</sup> Estimated for 2008 by assuming that future statewide on-site wastewater treatment system (OWTS) usage, on a percentage basis, will be the same as the 1990 Census rate (9.8%). This rate was applied to the projected total number of housing units statewide in 2008 to arrive at an estimate of the total number of housing units using OWTS within the state. These units were then distributed among the counties based on each county's percentage share of statewide OWTS in 1990.
- <sup>3</sup> Estimated for 2008 by assuming that future statewide OWTS usage, on a percentage basis, will be the same as the 1999 California State University, Chico (CSUC) rate (9.9%). This rate was applied to the projected total number of housing units statewide in 2008 to arrive at an estimate of the total number of housing units using OWTS within the state. These units were then distributed among the counties based on each county's percentage share of statewide OWTS in 1999.
- <sup>4</sup> Housing unit projections for 2013 were developed by interpolating between 2010 and 2020 population levels for each county, as projected by the California Department of Finance (2004), and then dividing the resulting 2013 population level by the average number of persons per housing unit in each county, as estimated by the California Department of Finance (2006).
- <sup>5</sup> Projected to 2013 by assuming that future statewide OWTS usage, on a percentage basis, will be the same as the 1990 U.S. Census rate (9.8%). This rate was applied to the projected total number of housing units statewide in 2013 to arrive at an estimate of the total number of housing units using OWTS within the state. These units were then distributed among the counties based on each county's percentage share of statewide OWTS in 1990.
- <sup>6</sup> Projected to 2013 by assuming that future statewide OWTS usage, on a percentage basis, will be the same as the 1999 CSUC rate (9.9%). This rate was applied to the projected total number of housing units statewide in 2013 to arrive at an estimate of the total number of housing units using OWTS within the state. These units were then distributed among the counties based on each county's percentage share of statewide OWTS in 1999.

## FUTURE BASELINE (2013) CONDITIONS

Two sets of OWTS usage projections for 2013 were developed, generally using the same two methods employed to develop 2008 projections. In summary, estimates were developed in the following manner:

1. Housing unit projections were developed for 2013.
2. Statewide percentages of OWTS usage from the 1990 Census and the 1999 CSUC study were applied to the housing projections.
3. The projections of housing units statewide using OWTS were distributed among the counties based on county shares of statewide OWTS usage in 1990 and 1999.

The methodology used for the 2013 projections differed only in how the projections of total housing units at the county level were developed. For 2013, housing unit projections were developed by interpolating between 2010 and 2020 population levels for each county, as projected by the California Department of Finance (2004), and then dividing the resulting 2013 population levels by the average number of persons per housing unit in each county, as estimated by the California Department of Finance (2006).

As Table 5-2 shows, this methodology resulted in a Census-based projection of 1,437,980 housing units using OWTS and a CSUC-based projection of 1,460,559 housing units using OWTS in California in 2013, a difference of about 1.6%. These 2013 projections of OWTS usage represent an 8.6% increase in statewide OWTS usage compared to their respective 2008 projections of OWTS usage.

Growth rates of households using OWTS in 303(d) areas for 2013 future baseline and 2013 proposed project conditions were assumed to be the same as the growth rates projected for the counties in which each area is located. The exception is Malibu Creek, which is assumed to experience no new OWTS growth between 2009 and 2013 because the remaining land in this watershed is mostly protected open space or too steep for development.

## **5.2.2 BUSINESSES USING OWTS IN CALIFORNIA**

In addition to household usage of OWTS, OWTS are used by a small percentage of businesses in the state. The economic analysis assumed that between 0.5% and 2.0% of all businesses in California would be using OWTS in 2008 and 2013.

No information, however, is available from the U.S. Census Bureau concerning historical or current numbers of businesses using OWTS in California. Professionals who provided information for this study were familiar with only one California county, Sonoma County, that has compiled such data. Consequently, information from Sonoma County, which includes an OWTS inventory and report (Sonoma County 2007) funded by an EPA grant to inventory EPA Class V injection wells, was used to estimate the number of businesses using OWTS. Information from the report includes the following:

- ▶ 102 OWTS met the EPA's Class V high-volume criterion,
- ▶ 271 OWTS met the EPA's Class V high-strength criterion, and
- ▶ an additional 531 OWTS were discharging "sanitary" waste from offices, warehouses, retail stores, and so forth.

Based on these findings, it is estimated that Sonoma County currently has 904 OWTS being used by businesses. With about 50,000 systems countywide (see Table 5-2 for the number of household OWTS in Sonoma County), businesses account for about 2% of all OWTS users in Sonoma County.

The number and percentage of businesses using OWTS vary from county to county depending on many factors, including the size of a county, the number of businesses within a county, and whether businesses in a county are concentrated in sewered areas or spread out in non-sewered areas. Discussions with EPA's staff (Janes, pers. comm., 2007), however, suggest that the 2% number from Sonoma County is considered to be fairly representative of the percentage of OWTS used by businesses statewide.

Approximately half of the OWTS being used by businesses consist of large-capacity/high-flow volume systems. (Large-capacity/high-flow volume systems are referred to as Class V injection wells by the EPA.) Because the draft regulations would become the default regulations that apply to all OWTS in California in the future, certain requirements of the draft regulations could apply to these large-capacity/high-flow volume systems. Most of these systems, however, are currently and individually regulated by Regional Water Boards through the use of waste discharge requirements (WDRs), effectively exempting these regulated systems from the requirements of the draft regulations. Therefore, the effects of the draft regulations on large-capacity/high-flow volume systems are anticipated to be limited to a small number of systems that are not regulated by WDRs. Although this small number of large-capacity/high-flow volume systems may face higher costs under the draft regulations, it would be highly speculative to estimate how many existing or new systems would be subject to the draft regulations in the future rather than to WDR requirements. Because of this uncertainty and the anticipated limited effects of the draft regulations on large-capacity/high-flow volume systems, no attempt was made to estimate the statewide or regional costs that these systems would incur to comply with the draft regulations.

The proposed OWTS regulations, however, are expected to adversely affect certain kinds of businesses more than others, such as high-strength waste dischargers that may be required to add supplemental treatment. Restaurants would be the major type of business affected by this proposed requirement (Bradley, pers. comm., 2007). Data are not available on the number of restaurants using OWTS in California, in the case-study counties of Los Angeles and Merced, or in the counties where the 303(d)-listed water bodies are located to assess potential costs for high-strength waste dischargers. Data, however, are available from the U.S. Census Bureau (2006b) to estimate the percentage of total businesses in each geographic area of interest that are restaurants and food service businesses to be affected by the proposed project.

According to data from the 2004 County Business Patterns report (U.S. Census Bureau 2006b), 6.3% of all business establishments in California are restaurant or food services businesses. In Los Angeles and Merced Counties, restaurants and other food service businesses account for 5.9% and 6.7%, respectively, of all businesses in these counties. In the counties in which 303(d) areas are located (in addition to Los Angeles County), restaurant and food service businesses account for 6.7% in Riverside County, 6.1% in San Diego County, and 5.7% in Ventura County. For this study, these percentages were used to estimate the number of businesses using OWTS that are high-strength waste dischargers subject to the draft regulations under both 2008 and 2013 conditions.

The types of businesses that would benefit from the proposed project are described below regarding future (2013) conditions.

## **EXISTING BASELINE CONDITIONS (2008)**

Statewide, the number of businesses using OWTS in 2008 is estimated to range from 4,450 to 17,810 businesses, including 4,400–17,400 businesses that fall into the small business category. In the case-study counties, the number of businesses using OWTS in 2008 was estimated at 1,770 (1,730 small businesses) in Los Angeles County and 190 (180 small businesses) in Merced County.

For the 303(d) areas, the same methodology used to estimate usage of OWTS by businesses in the case-study counties was used to estimate usage of OWTS by businesses in the 303(d) areas. As background, the State Water Board has identified 10 water bodies with adopted total maximum daily loads (TMDLs) that identify OWTS as contributing to bacteriologic and/or nutrient impairment. The areas within 600 feet of these water bodies are referred to as targeted 303(d) areas, or targeted impaired areas. Based on roof-top counts from aerial photographs, the State Water Board (Thompson, pers. comm., 2007) provided estimates of the number of structures (homes and businesses) within 600 feet of the water bodies that the proposed project could affect in the short-term (areas within 600 feet of additional impaired water bodies would likely be affected in the long-term as TMDLs are adopted for these water bodies over time). The estimated number of structures (homes and businesses) using OWTS within 600 feet of an impaired water body in the 10 watersheds totaled 7,698 units, distributed as follows:

- ▶ Malibu Creek (Los Angeles County): 800 OWTS
- ▶ Northern Santa Monica Bay Beaches (Los Angeles County): 1,563 OWTS
- ▶ Santa Clara River (Ventura and Los Angeles counties): 200 OWTS
- ▶ Tomales Bay (Marin County): 350 OWTS
- ▶ Napa River (Napa County): 350 OWTS
- ▶ Sonoma Creek (Sonoma County): 200 OWTS
- ▶ Canyon Lake (Riverside County): 0 OWTS
- ▶ Lake Elsinore (Riverside County): 35 OWTS
- ▶ Rainbow Creek (San Diego County): 200 OWTS
- ▶ San Lorenzo River (Santa Cruz County): 4,000 OWTS

It should be noted that the State Water Board identified no homes or businesses using OWTS and within 600 feet located in the Canyon Lake 303(d) area; therefore, no businesses were projected for this area in 2008 or 2013. Additionally, per Section 30040(d) of the draft regulations, the San Lorenzo watershed, Sonoma Creek, and Napa River would not be affected by the regulations; therefore, no businesses were projected for this area in 2008 or 2013. As a result, the cost assessment in this report focused on the 2,798 potentially affected units in the remaining five 303(d) areas.

The estimated number of businesses using OWTS within 600 feet of the five affected 303(d) areas for 2008 was as follows.

- ▶ Malibu Creek (Los Angeles County): six businesses
- ▶ Northern Santa Monica Bay Beaches (Los Angeles County): 11 businesses
- ▶ Santa Clara River (Ventura and Los Angeles counties): two businesses
- ▶ Lake Elsinore (Riverside County): two businesses
- ▶ Rainbow Creek (San Diego County): four businesses

## **FUTURE BASELINE CONDITIONS (2013)**

Statewide, the number of businesses using OWTS in 2013 is projected to range from 4,755 to 19,025 businesses, including 4,630–18,530 small businesses. In the case-study counties, the number of businesses using OWTS in 2013 was projected to total 1,870 (1,830 small businesses) in Los Angeles County and 195 (190 small businesses) in Merced County.

For the 303(d) areas, the projected change in the number of businesses using OWTS between 2008 and 2013 is anticipated to be very small because of the small number of businesses estimated to be using OWTS in these areas and because of the estimated slow rate of business growth for these areas. For 2013, the number of businesses using OWTS in the five affected 303(d) areas was projected as follows.

- ▶ Malibu Creek (Los Angeles County): six businesses (Note: Due to the built-out nature of the Malibu Creek 303(d) area, no growth in businesses is anticipated in this area between 2008 and 2013)
- ▶ Northern Santa Monica Bay Beaches (Los Angeles County): 11 businesses
- ▶ Santa Clara River (Ventura and Los Angeles Counties): two businesses
- ▶ Lake Elsinore (Riverside County): two businesses
- ▶ Rainbow Creek (San Diego County): four businesses

Changes in statewide OWTS regulations could beneficially affect businesses that profit from the installation, maintenance, and monitoring of OWTS. The industrial sectors comprising the businesses most likely to be beneficially affected by the draft regulations are shown in Tables 4, 5, and 6 of Appendix G. These include



businesses that manufacture, sell, install, and service OWTS. Table 4 in Appendix G summarizes statewide data on the number of businesses, employees, and payroll for the larger industrial sectors in which the OWTS-related businesses are located. These tables also include estimates of the number of establishments in each industrial sector that fall into the small business category, a topic of special interest to DOF in the Form 399 process discussed in this section's introduction.

### **5.2.3 REPRESENTATIVE OWTS DESIGN, INSTALLATION, AND MAINTENANCE COSTS**

Ranges of representative costs for OWTS-related services and other items often paid for by OWTS owners were estimated and are presented in detail in Table A-1 of Appendix G. These costs are expressed in 2007 dollars and are considered representative at most, but not all, local jurisdictions. Some types of costs are not applicable in some jurisdictions. For example, the costs of seepage pits are not applicable in some jurisdictions because such pits are not allowed. Other costs, such as designing, siting, and installing conventional OWTS, are representative for all jurisdictions. Additionally, some cost items would be new for many jurisdictions under the proposed project, such as costs related to supplemental treatment systems (OWTS with supplemental treatment units). OWTS with supplemental treatment units are relatively new technologies that currently cannot be used for new construction in most jurisdictions. Although OWTS with supplemental treatment units costs are higher than costs for conventional systems, installing OWTS with supplemental treatment units may allow a landowner to develop land that otherwise might not be suitable for construction.

OWTS-related costs, including the costs to design, install, and maintain conventional OWTS and OWTS with supplemental treatment units, vary throughout California. Some of the most common factors affecting costs include:

- ▶ local labor and equipment rates, which vary based on local supply and demand conditions, the cost of living, and other considerations;
- ▶ site conditions, such as targeted capacity of the system versus the parcel size, difficulty of terrain, and the extent of site evaluation requirements (e.g., percolation testing, groundwater monitoring, soil sampling, and laboratory analyses);
- ▶ design factors, such as simple engineered plans for easy sites versus complex plans for a highly constrained site requiring topographic mapping, construction documents, extensive negotiation with the permitting agency, and construction observation by the designer;
- ▶ installation factors, including size of the system, specific transportation costs to a particular site (e.g., cost of hauling gravel to a remote site), and county standards (for OWTS with supplemental treatment units, the local agency may add cost for certain requirements); and
- ▶ maintenance and monitoring service factors, such as knowledge of septic tank location when inspecting tanks, presence or absence of maintenance access risers, type of service provider (dedicated repair and maintenance service provider, septic pumper, or installation contractor).

Other cost variables are noted in Table A-1 of Appendix G as they relate to specific cost items.

The cost estimates in Table A-1 of Appendix G were mostly developed by Pete Lescure of Lescure Engineers in northern California, with considerable input from two other OWTS professionals: Mike Treinen, a registered environmental health specialist and wastewater consultant in northern California, and Barbara Bradley with Advanced Onsite Systems in southern California. The cost estimates represent primarily costs in those counties where the OWTS professionals have experience.

The costs were developed for a generic single-family residence. All new OWTS with supplemental treatment units are assumed to meet the applicable performance standards stated in the draft regulations. Proprietary OWTS

with supplemental treatment units are assumed to meet the proposed certification requirements. Certain assumptions were necessary to make the cost items fit how costs occur in practice. For example, subsurface drip dispersal is always preceded by supplemental treatment. Therefore, these dispersal costs were included in the cost of a trickling filter and in the cost of suspended growth aerobic OWTS with supplemental treatment units.

For the cost assessment described in this section, the following midpoint estimates from Table A-1 of Appendix G were used unless otherwise noted:

- ▶ Designing, siting, and installing conventional OWTS: new conventional OWTS = \$18,600 for households, \$23,300 for businesses; replaced OWTS with conventional OWTS = \$9,650.
- ▶ Designing, siting, and installing new OWTS with OWTS with supplemental treatment units: non-high strength = \$35,000; high strength = \$250,000.
- ▶ Replacing conventional OWTS with OWTS with supplemental treatment units: non-high strength = \$45,000; high strength = \$250,000.
- ▶ Groundwater level determination = \$1,250 (one-time) for households and businesses for new OWTS (existing baseline, future baseline, and proposed project).
- ▶ Inspecting and pumping septic tanks and disposal of septage: tank inspections = \$325 for households, \$500 for businesses; tank pumping and septage disposal = \$470 for households, \$600 for businesses. These costs were annualized assuming that tank inspection would occur on average once every 10 years under 2008 existing baseline conditions and 2013 future baseline conditions, and once every 5 years under the proposed project. (Note that the assumption that inspection and pumping would occur more often under the proposed project is a worst-case assumption; State Water Board staff expects that many OWTS would not be pumped so frequently.)
- ▶ Groundwater sampling from a domestic water or monitoring well = \$325. Costs were annualized based on sampling occurring once every 5 years, as required under the proposed project.
- ▶ OWTS with supplemental treatment units maintenance contract with a service provider: annual OWTS with supplemental treatment units maintenance contract = \$700; annual monitoring and maintenance costs = \$7,500 for non-high strength OWTS with supplemental treatment units and \$12,500 for high-strength OWTS with supplemental treatment units.
- ▶ Collecting and testing effluent samples for OWTS with supplemental treatment units = \$1,300 annually (\$325 per test). Cost annualized assuming that collecting and testing would be done quarterly under the proposed project, although this would not be required by the draft regulations.
- ▶ Additional costs for OWTS with supplemental treatment units with disinfection: weekly inspections = \$7,800 annually (\$150 per inspection), or telemetric monitoring = \$740 annually (\$500 for a service provider, \$240 for a dedicated phone line).

### 5.3 FISCAL SETTING

This section describes current fiscal conditions related to administering OWTS programs at the state and local level in California.

### **5.3.1 STATE WATER BOARD AND REGIONAL WATER BOARD OWTS-RELATED PROGRAMS**

Prospective owners of OWTS apply for permits from local agencies, including all 58 counties and a few cities and special districts. Most local agencies have adopted ordinances or regulations governing the siting and design of OWTS. Where ordinances have not been adopted, local agency staff members may rely on the California Plumbing Code or other documents for their requirements. Local agency staff members are typically funded by permit fees.

Each of the nine Regional Water Boards has adopted into its water quality control plans (basin plans) minimum siting and design requirements for OWTS for the protection of water quality. Since basin plans have the force of state regulations, local agency ordinances or regulations cannot be less stringent than requirements contained in the appropriate basin plan. In some cases, local OWTS regulations are more environmentally protective than those included in the basin plans. (See the regulatory comparison in Chapter 3.2, “Representative Regulations of Selected Local Governments and Regional Water Quality Control Boards,” of this DEIR for more information regarding existing OWTS regulations in California.)

The State Water Board proposes to adopt new statewide regulations for OWTS. Once adopted, OWTS may not be designed or installed in any manner that would be less restrictive than requirements contained in the regulations. The State Water Board also proposes to adopt a statewide waiver of WDRs. The statewide waiver parallels the requirements of the regulations but will be separately adopted by the State Water Board. The waiver is intended to satisfy Section 13269 of the California Water Code and will provide a mechanism to allow the discharge of waste from OWTS without direct state oversight under the requirements of WDRs.

Since the 1970s, Regional Water Boards have formally or informally waived regulating most OWTS provided that the local agencies provided sufficient oversight to protect water quality. The exceptions are for OWTS serving multiple-family residences and businesses, or where an OWTS serves multiple service connections. In those cases, most Regional Water Boards have issued individual WDRs.

No funds are identified in the state budget for either the State Water Board staff or Regional Water Board staff to regulate OWTS through a waiver program or for the regulations. During the 1970s and early 1980s, funding from the State General Fund was used to support state staffing. From the mid-1980s, regulatory programs have been increasingly required to be entirely supported from fees. There has been a reluctance to initiate a fee on owners of OWTS for a number of reasons, including the fact that few local agencies require OWTS owners to pay an annual fee. Therefore, most local agencies do not maintain databases of OWTS owners.

The State Water Board estimates that between 14 and 18 staff members among the 13 State Water Board and Regional Water Board offices are necessary to carry out the current regulatory responsibilities related to OWTS.

### **5.3.2 REPRESENTATIVE LOCAL AGENCY OWTS-RELATED EXPENDITURES**

Costs to local agencies for administering OWTS-related programs vary considerably, depending on the number and type of OWTS within a jurisdiction; local soil, geology, topography, and groundwater characteristics; water quality issues; local OWTS policies; and budget issues. Local programs can range from low-intensity permitting and oversight programs to high-intensity management programs that are often associated with jurisdictions with OWTS-related water quality problems and the use of nonconventional OWTS.

A 2004 report by the California Wastewater Training and Research Center at California State University, Chico, provided descriptions of six relatively progressive OWTS management programs of varying intensity in California. These programs are located in Santa Cruz County (including the San Lorenzo Watershed), Sonoma County, Stinson Beach (Marin County), The Sea Ranch (Sonoma County), the Town of Paradise (Butte County), and the Auburn Lakes Trails subdivision (El Dorado County). Although these programs are not representative of

typical local OWTS management programs throughout California, they do provide cost indicators for local programs that would be established in specific jurisdictions following implementation of the proposed OWTS regulations. The size, staffing, and costs of these six progressive local programs are summarized in Table 5-3.

<b>Table 5-3</b> <b>Summary of Progressive Local OWTS Management Programs</b>				
Jurisdiction	Number of OWTS	Number of Alternative OWTS in Use <sup>1</sup>	Agency Staffing Level for Program	Annual Cost of Program (Fiscal Year 2001–2002)
Santa Cruz County	22,000 countywide; 13,000 in San Lorenzo Watershed	195 countywide; 137 in San Lorenzo Watershed	17 total staff members (11 full time, 6 part time)	\$870,000 countywide, including \$240,000 specific to the San Lorenzo Watershed
Sonoma County	45,000 countywide	2,204 (Year 2000)	3.4 staff (not including supervisory and management staff that are allocated as overhead)	\$377,400 (for inspection and monitoring of alternative OWTS)
Stinson Beach (Marin County)	705 (estimated based on budget and fees)	NA	4 total staff (2 full time, 2 part time)	\$281,800
The Sea Ranch (Sonoma County)	1,000	NA	5.2 staff	\$193,400
Town of Paradise (Butte County)	11,118	61	4 staff (estimated based on 8,100 person-hours per year)	\$281,300
Auburn Lakes Trail subdivision (El Dorado County)	893	693	2.5 staff	NA
Notes: NA = not available. <sup>1</sup> In most cases, "Alternative OWTS" are similar to what is referred to as supplemental treatment systems or OWTS with supplemental treatment units in this assessment. Source: California Wastewater Training and Research Center, California State University, Chico, Chico Research Foundation 2004.				

The services provided by the six programs vary but are generally fairly extensive. For example, at the upper end of the range, the Santa Cruz program provides the following services:

- ▶ planning, management oversight, and reporting to meet Regional Water Board requirements;
- ▶ parcel-specific data management;
- ▶ septage-receiving facility;
- ▶ water quality monitoring;
- ▶ parcel investigations for signs of system failure on the average on once every 6 years;
- ▶ public education;
- ▶ annual inspection and effluent monitoring of nonstandard systems;
- ▶ community sewer feasibility studies;
- ▶ evaluation and approval of proposed system designs;
- ▶ inspection of system installations; and
- ▶ low-interest loans for system upgrades.

The progressive OWTS management programs are generally funded by parcel fees. Examples of annual fees levied to fund the management programs include the following.

- ▶ Santa Cruz County
  - countywide septic maintenance: \$6.90 per parcel per year
  - San Lorenzo watershed septic management: \$18.54 per parcel per year
  - inspection and monitoring of nonstandard systems: \$196 per parcel per year for alternative systems; \$98 per parcel per year for nonconforming systems
- ▶ Sonoma County
  - \$83–\$246 per parcel per year, depending upon system inspection frequency
- ▶ Stinson Beach
  - \$355 per residence per year
- ▶ The Sea Ranch
  - \$105 per residence per year

## **5.4 ECONOMIC IMPACTS**

The discussion of the proposed project's economic impacts focuses on the types of impacts listed below:

- ▶ OWTS-related cost increases that would be incurred by households and businesses as the new regulations are implemented.
- ▶ Increases in spending by OWTS owners that would be an increase in gross revenue for businesses that provide OWTS-related products and services.
- ▶ The creation of new businesses and jobs as spending on OWTS-related services and products increases.
- ▶ Economic benefits related to water quality improvements.

These types of effects are described in the sections below after some of the key assumptions used in this analysis are defined.

### **5.4.1 KEY ASSUMPTIONS OF THE PROPOSED PROJECT**

Compared to current conditions, the statewide number of OWTS in non-303(d) areas equipped with OWTS with supplemental treatment units is expected to double by 2013 regardless of whether the draft regulations are implemented. Under the draft regulations, all OWTS within 600 feet of certain 303(d)-listed water bodies in California would have to convert to OWTS with supplemental treatment units within 4 years of a regulation-mandated inspection. (Such 303(d) water bodies are those where OWTS have been determined to be contributing to impairment and TMDLs have been adopted for the impaired water bodies.)

Households and businesses also must comply with proposed changes in requirements for operating, maintaining, and monitoring both existing and new OWTS. These effects, which differ depending on site-specific conditions, are as follows:

- ▶ For households with existing conventional OWTS, tank inspection is assumed to occur once every 5 years. This would result in a doubling of the assumed present OWTS maintenance practices. (Note that the assumption that inspection would occur more often under the proposed project is a worst-case assumption; the State Water Board's staff expects that many OWTS would not be inspected so frequently.)
- ▶ All households and businesses with OWTS (conventional and OWTS with supplemental treatment units) located on properties with on-site domestic wells would need to conduct groundwater sampling once every 5 years under the proposed project, a new requirement for OWTS users.
- ▶ For households and businesses with OWTS located within 600 feet of an impaired water body, a one-time groundwater level determination would be required by the proposed project for all new and existing OWTS. (Note that under existing conditions and no-project conditions, a groundwater level determination is only required for new OWTS throughout the state.)

In addition, households and businesses with OWTS with supplemental treatment units would have to comply with the following requirements under the proposed project:

- ▶ Households and businesses with OWTS with supplemental treatment units would be required to have a maintenance contract with a qualified service provider. Additionally, OWTS with supplemental treatment units operating costs are anticipated to be higher for most businesses, particularly for high-strength waste dischargers.
- ▶ Households and businesses with OWTS with supplemental treatment units may need periodic effluent collection and testing, although this is not specifically required under the draft regulations. The draft regulations would require the effluent from OWTS with supplemental treatment units to be collected and tested in accordance with OWTS with supplemental treatment units operation and maintenance manuals, or more frequently if required by the Regional Water Board or local program implementing the regulations.
- ▶ The draft regulations would require households and businesses in areas with bacteria impairment that are using OWTS with supplemental treatment units with disinfection to have weekly inspections of their systems by a service provider or to have a system equipped with telemetric monitoring.

## **5.4.2 PRIVATE SECTOR COSTS**

This section describes OWTS-related private sector costs under current conditions, future no-project conditions, and future proposed project conditions. The assessment of private-sector costs are largely driven by expected changes in the requirements for OWTS with supplemental treatment units and for operating, maintaining, and monitoring the performance of OWTS.

The cost to households and businesses that must install new OWTS with supplemental treatment units and to convert conventional OWTS to OWTS with supplemental treatment units would be substantial. Based on the unit cost estimates developed for this assessment (see Table A-1 in Appendix G), the costs for installing an OWTS with a supplemental treatment unit are anticipated to range from \$25,000 to \$45,000, compared to installation costs of \$13,900–\$23,300 for a conventional OWTS. For businesses that are high-strength waste dischargers using OWTS and do not require large-capacity/high-flow volume systems, the costs for installing an OWTS with a supplemental treatment unit would be much higher, ranging from \$100,000 to \$400,000. (Note that these costs would apply to only high-strength waste dischargers that are replacing an existing OWTS or installing a new OWTS.)

In this section, the total annual costs to households and businesses of the proposed project are compared to both the 2008 existing conditions baseline and to the 2013 no-project baseline condition.

## **BASELINE CONDITIONS**

### **Unit Costs**

For a typical household using OWTS in 2008, costs would include periodic tank inspection, which is estimated to range from \$150 to \$500 per inspection. Assuming homeowners have their tanks inspected once every 10 years, these costs would range from \$15 to \$50 on an annual basis, with a midpoint cost of \$33 per year.

For a typical property owner installing a new conventional OWTS, the design, siting, and installation costs are estimated to range from \$13,900 to \$23,300, with a midpoint cost of \$18,600. For a household replacing a conventional OWTS with another conventional OWTS, costs are estimated to be about \$9,700. Additionally, for a household installing a new OWTS, a one-time groundwater level determination is required by the Uniform Plumbing Code. This cost is estimated to range from \$1,000 to \$1,500, with a midpoint cost of \$1,250.

For a typical business using OWTS in 2008, costs are anticipated to be at the upper end of the cost range for households, with annual tank inspection costs of \$50, and OWTS design, siting, and installation costs of \$23,300. A groundwater level determination is estimated to cost the same as for households (\$1,250). For businesses using OWTS with supplemental treatment units, effluent collection and testing is assumed to be required on a quarterly basis. Costs are estimated to range from \$800 to \$1,800, with a midpoint cost of \$1,300.

Unit costs for typical households and businesses under no-project conditions are assumed to be the same as under 2008 existing conditions.

### **Total Costs**

***Existing Baseline Conditions (2008).*** For all geographic areas of interest, a cost for 2008 was estimated to provide an existing conditions baseline for the analysis. The 2008 costs are the annualized inspection costs related to normal maintenance of existing OWTS, and the design, siting, and installation costs for new OWTS constructed in 2008 and for those OWTS that would be replaced during that year.

**Statewide.** Annual costs statewide in 2008 are estimated to range from \$495.8 million to \$510.6 million, with households accounting for more than 98% of total costs (Table 5-4). Businesses using OWTS, which are estimated to account for a small percentage of OWTS users statewide, are estimated to face annual costs ranging from \$2.2 million to \$9.1 million under existing conditions.

**Case Study Counties.** Costs in 2008 in the case-study counties of Los Angeles and Merced vary substantially due primarily to the differences in their population sizes and the number of OWTS being used in each county. Annual costs for Los Angeles are estimated to range from \$33.4 million to \$36.2\* million in 2008. In Merced County, annual costs are estimated to range from \$6.3 million to \$6.5 million. In both counties, costs would be borne primarily by households using OWTS (about 98% in both Los Angeles and Merced counties).

**303(d) Areas.** For the estimated 2,798 households and businesses within 600 feet of impaired water bodies in California subject to the draft regulations, annual OWTS-related costs are estimated to total about \$910,000 in 2008, with households accounting for an estimated 99% of the costs (Table 5-5). These estimated costs include annualized inspection costs related to normal maintenance of existing OWTS and they include design, siting, and installation costs for new and replaced OWTS in 2008. Among the 303(d) areas with OWTS users, annual costs in

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\* These costs are (1) a sum of annualized midpoint costs of inspecting septic tanks, and (2) an estimate of new and replaced units multiplied by the mid-point cost of constructing new and replaced OWTS (including a small number of STS).

2008 are estimated to range from \$15,000 for the estimated 35 OWTS users in the Lake Elsinore 303(d) area to \$636,000 for the estimated 1,563 OWTS users in the Northern Santa Monica Bay Beaches 303(d) area.

**Future Baseline Conditions (2013).** Under no-project conditions, costs for normal maintenance and design/siting/installation of new and replaced OWTS were developed over the 2009–2013 period, with differences from 2008 baseline costs largely attributable to the population-driven growth in OWTS use over that period and by the assumed increase in use of OWTS with supplemental treatment units by 2013.

**Statewide.** Statewide OWTS-related costs accumulating over the 5-year (2009–2013) period are projected to total about \$3.2 billion under future baseline conditions. When annualized over this period, costs are projected to range from \$637 million to \$640 million for households and businesses in California, with household OWTS users accounting for about 99% of the costs. Annual statewide costs over the 2009–2013 period are projected to be about 25–29% higher than costs in 2008.

**Case Study Counties.** In the case-study counties, cumulative OWTS-related costs over the 5-year period are projected to range from \$203.3 to \$213.8 million in Los Angeles County and from \$40.1 to \$40.5 million in Merced County under future baseline conditions. Annual costs over this period for households and businesses are projected to range from \$40.7 to \$42.8 million in Los Angeles County and to average about \$8.1 million in Merced County. Relative to costs in 2008, annual costs over the 2009–2013 period are projected to increase by about 18–22% in Los Angeles County and by about 25–29% in Merced County.

**303(d) Areas.** Under future baseline conditions, OWTS-related costs across all 303(d) areas are projected to cumulatively total \$5.4 million over the 2009–2013 period. On an annual basis, these costs would be about \$1.1 million, representing a 18% increase over 2008 costs. Among the 303(d) areas with OWTS users, annual costs over the 5-year period are projected to be highest in the northern Santa Monica Bay beach area at \$741,000 and lowest in the Lake Elsinore area at \$18,000. Differences in annual costs relative to 2008 for OWTS users in other 303(d) areas would be minor.

## **PROPOSED PROJECT**

### **Unit Costs**

Under proposed project conditions, unit costs for households with existing conventional OWTS would be the same as under existing conditions, with three exceptions. First, although the Proposed Regulations do not require inspection at an increased frequency, tank inspection is assumed to occur twice as often (i.e., on average once every 5 years), although the draft regulations do not require pumping at an increased frequency, resulting in annual costs ranging from \$30–\$100, with a midpoint cost of \$65, compared to \$33 under existing conditions. (Note that the assumption that inspection would occur more often under the proposed project is a worst-case assumption; the State Water Board's staff expects that many OWTS would not be inspected so frequently.) Second, all households with OWTS (conventional and OWTS with supplemental treatment units) located on properties with on-site domestic wells would incur groundwater sampling costs once every 5 years. Groundwater sampling and testing costs are estimated to range from \$200 to \$450, or from \$40 to \$90 (with a midpoint cost of \$65) when annualized over 5 years. Third, a one-time groundwater level determination would be required for all new and existing OWTS located within 600 feet of an impaired water body, with a midpoint cost of \$1,250. (Note that under existing conditions and no-project conditions, a groundwater level determination is only required for new OWTS throughout the state.)

For a typical property owner installing a new OWTS with a supplemental treatment unit under the draft regulations, the design, siting, and installation costs are estimated to range from \$25,000 to \$45,000, with a midpoint cost of \$35,000, compared to \$18,600 for a conventional OWTS. For a household replacing a conventional OWTS with OWTS with supplemental treatment units, costs are estimated to range from \$30,000 to \$60,000, with a midpoint cost of \$45,000.



In addition to higher design, siting, and installation costs, households using OWTS with supplemental treatment units would also face higher ongoing costs under the proposed project for a maintenance contract with a service provider. The cost of an OWTS with a supplemental treatment unit maintenance contract is estimated to range from \$400 to \$1,000 annually, with a midpoint cost of \$700. Additionally, households using OWTS with supplemental treatment units may face costs for periodic effluent collection and testing, although this is not specifically required under the draft regulations. However, the draft regulations would require OWTS with supplemental treatment units effluent collection and testing in accordance with OWTS with supplemental treatment units O&M manuals, or more frequently if required by the local Regional Water Board. Quarterly testing is the most common requirement at the local and regional levels (Bradley, pers. comm., 2007), so the cost analysis assumed that quarterly OWTS with supplemental treatment units testing would occur under the draft regulations. Effluent collection and testing costs are estimated to range from \$200 to \$450 per occurrence, or from \$800 to \$1,800 per year for quarterly testing, with a midpoint cost of \$1,300. Finally, the draft regulations would require households in areas with bacteria impairment that are using OWTS with supplemental treatment units with disinfection, which are assumed to include 20% of all OWTS with supplemental treatment units statewide, to have weekly inspections of their systems by a service provider or to have a system equipped with telemetric monitoring. Weekly inspections are estimated to cost \$150, or \$7,800 annually (Bradley, pers. comm., 2007); telemetric monitoring is estimated to cost \$740 annually.

For a typical business using a conventional OWTS or OWTS with a supplemental treatment unit under the proposed project, costs are anticipated to be the same as those for households. The exceptions are tank inspection and pumping costs, which are estimated at \$100 when annualized over 5 years, and annual operating costs for business users using OWTS with supplemental treatment units, which are estimated to range from \$4,000 to \$11,000, with a midpoint cost of \$7,500.

For businesses that are high-strength waste dischargers using OWTS that do not require large-capacity/high-flow volume, systems may be required to add supplemental treatment under the proposed project. Restaurants would be the major type of business affected by this proposed requirement (Bradley, pers. comm., 2007). Costs for designing, siting, and installing a high-strength OWTS with supplemental treatment units are estimated to range from \$100,000 to \$400,000, with a midpoint cost of \$250,000. These high-strength systems would also generate higher annual operating costs to business users. Annual operating costs for high-strength OWTS with supplemental treatment units systems are estimated to range from \$10,000 to \$15,000, with a midpoint cost of \$12,500.

## **Total Cost Impacts**

Under proposed project conditions, costs were projected over the 2009–2013 period, totaled, converted to present value, and annualized. These costs include those under no-project conditions, but also include additional costs associated with the proposed project, including groundwater sampling from a domestic water or monitoring well, OWTS maintenance contracts with service providers for OWTS with supplemental treatment units, weekly system inspection or telemetric monitoring (for OWTS with supplemental treatment units with disinfection only), and possibly collecting and testing effluent samples for OWTS with supplemental treatment units. (Note: As previously discussed, the proposed project would not require OWTS with supplemental treatment units effluent collection and testing; however, the cost analysis assumed that quarterly testing of OWTS with supplemental treatment units would occur under the proposed project.) For businesses, additional costs associated with the proposed project include more expensive installation and maintenance costs for OWTS with supplemental treatment units for high-strength effluent producers. The assumed replacement rate for OWTS is also higher under the proposed project, resulting in additional costs for both businesses and households.

**Statewide.** As summarized in Table 5-4, cumulative costs to OWTS users statewide over the 5-year (2009–2013) analysis period are projected to range from \$4.6 billion (using the CSUC-based method) to \$4.9 billion (using the census-based method) with implementation of the proposed project. These cumulative costs are projected to range from \$1.4 billion (using the CSUC-based method) to \$1.7 billion (using the census-based method) higher than costs over the same period under future baseline conditions, an increase ranging from 45–

Table 5-4 Summary of Cost Impacts on Households and Businesses in Los Angeles County, Merced County, and California (in millions of dollars)												
Area	Annual Costs in 2008 <sup>a</sup>	2013 No Project Costs				2013 Proposed Regulations Costs						
		Total 2009-2013 Costs		Annualized Costs (in Present Value)		Total 2009-2013 Costs		Annualized Costs (in Present Value)		Change in Costs Relative to No Project Conditions		
		Nominal Costs	Present Value	Average Annual	Increase from 2008	Nominal Costs	Present Value	Average Annual	Increase from 2008	Total 2009-2013 Increase in Costs		Average Annual Increase in Costs
										Nominal Costs	Present Value	
<i>Census-Based Household Projections/High-Range Statewide Business Projections</i>												
<b>Los Angeles County:</b>												
Households	\$39.9	\$253.4	\$232.1	\$46.4	\$6.6	\$437.6	\$400.8	\$80.2	\$40.3	\$184.2	\$168.7	\$33.8
Businesses	\$0.94	\$4.7	\$4.3	\$0.86	-\$0.07 <sup>c</sup>	\$43.0	\$39.4	\$7.9	\$6.9	\$38.3	\$35.0	\$7.0
Total	\$40.8	\$258.1	\$236.4	\$47.3	\$6.5	\$480.6	\$440.2	\$88.1	\$47.2	\$222.5	\$203.7	\$40.8
<b>Merced County:</b>												
Households	\$7.2	\$48.2	\$44.1	\$8.8	\$1.6	\$71.0	\$65.1	\$13.0	\$5.8	\$22.8	\$20.9	\$4.2
Businesses	\$0.08	\$0.37	\$0.34	\$0.07	-\$0.01 <sup>c</sup>	\$4.9	\$4.5	\$0.9	\$0.8	\$4.6	\$4.2	\$0.8
Total	\$7.3	\$48.6	\$44.4	\$8.9	\$1.6	\$75.9	\$69.6	\$13.9	\$6.6	\$27.4	\$25.1	\$5.0
<b>California<sup>b</sup>:</b>												
Households	\$563.7	\$3,765.2	\$3,448.7	\$689.7	\$126.0	\$5,551.1	\$5,084.4	\$1,016.9	\$453.1	\$1,785.7	\$1,635.6	\$327.1
Businesses	\$10.2	\$54.1	\$49.6	\$9.9	-\$0.23 <sup>c</sup>	\$473.7	\$433.9	\$86.8	\$76.6	\$419.5	\$384.3	\$76.9
Total	\$573.9	\$3,819.3	\$3,498.3	\$699.6	\$125.8	\$6,024.8	\$5,518.3	\$1,103.7	\$529.7	\$2,205.2	\$2,019.9	\$404.0
<i>CSUC-Based Household Projections/Low-Range Statewide Business Projections</i>												
<b>Los Angeles County:</b>												
Households	\$36.8	\$240.7	\$220.5	\$44.1	\$7.3	\$419.5	\$384.2	\$76.8	\$40.0	\$178.8	\$163.7	\$32.7
Businesses	\$0.9	\$4.7	\$4.3	\$0.9	-\$0.07 <sup>c</sup>	\$42.9	\$39.4	\$7.9	\$6.9	\$38.3	\$35.0	\$7.0
Total	\$37.7	\$245.4	\$224.8	\$45.0	\$7.2	\$462.4	\$423.6	\$84.7	\$46.9	\$217.1	\$198.7	\$39.7

**Table 5-4**

**Summary of Cost Impacts on Households and Businesses in Los Angeles County, Merced County, and California (in millions of dollars)**

Area	Annual Costs in 2008 <sup>a</sup>	2013 No Project Costs				2013 Proposed Regulations Costs						
		Total 2009-2013 Costs		Annualized Costs (in Present Value)		Total 2009-2013 Costs		Annualized Costs (in Present Value)		Change in Costs Relative to No Project Conditions		
		Nominal Costs	Present Value	Average Annual	Increase from 2008	Nominal Costs	Present Value	Average Annual	Increase from 2008	Total 2009-2013 Increase in Costs		Average Annual Increase in Costs
										Nominal Costs	Present Value	
Merced County:												
Households	\$7.0	\$47.7	\$43.7	\$8.7	\$1.8	\$70.4	\$64.4	\$12.9	\$5.9	\$22.6	\$20.7	\$4.1
Businesses	\$0.08	\$0.37	\$0.34	\$0.07 <sup>c</sup>	-\$0.009 <sup>c</sup>	\$4.9	\$4.5	\$0.9	\$0.8	\$4.6	\$4.2	\$0.8
Total	\$7.1	\$48.1	\$44.0	\$8.8	\$1.8	\$75.3	\$68.9	\$13.8	\$6.7	\$27.2	\$24.9	\$4.9
California <sup>b</sup> :												
Households	\$556.8	\$3,824.4	\$3,502.9	\$700.6	\$143.8	\$5,638.1	\$5,164.2	\$1,032.8	\$476.0	\$1,813.8	\$1,661.3	\$332.3
Businesses	\$2.5	\$13.6	\$12.4	\$12.5	-\$0.013	\$118.7	\$108.7	\$21.7	\$19.2	\$105.1	\$96.3	\$19.3
Total	\$559.3	\$3,838.0	\$3,515.3	\$713.1	\$143.8	\$5,756.8	\$5,272.9	\$1,054.5	\$495.2	\$1,918.9	\$1,757.6	\$351.6

Notes:

<sup>a</sup> Costs in 2008 include annualized inspection costs related to normal maintenance of existing OWTS; and design, siting, and installation costs for new and replaced OWTS in 2008.

<sup>b</sup> Projected statewide costs are assumed to implicitly include effects in 303(d) areas. Although effects in 303(d) were estimated separately from statewide effects, these effects are assumed to be included in the overall statewide effects.

<sup>c</sup> Negative cost changes are artifacts of the mathematical calculations used to convert small cost increases to present value dollars.

**Table 5-5**  
**Summary of Cost Impacts on Households and Businesses in 303(d) Areas (In Millions of Dollars)**

Area	Annual Costs in 2008 <sup>1</sup>	2013 No Project Costs				2013 Proposed Regulations Costs						
		Total 2009–2013 Costs		Annualized Costs (in Present Value)		Total 2009–2013 Costs		Annualized Costs (in Present Value)		Change in Costs Relative to No Project Conditions		
		Nominal Costs	Present Value	Average Annual	Increase from 2008	Nominal Costs	Present Value	Average Annual	Increase from 2008	Total 2009–2013 Increase in Costs		Average Annual Increase in Costs
										Nominal Costs	Present Value	
Malibu Creek												
Households	\$0.143	\$0.729	\$0.668	\$0.134	-\$0.009 <sup>2</sup>	\$54.967	\$50.346	\$10.069	\$9.926	\$54.238	\$49.679	\$9.936
Businesses	\$0.001	\$0.007	\$0.007	\$0.001	\$0.000	\$0.753	\$0.690	\$0.138	\$0.137	\$0.746	\$0.683	\$0.137
Total	\$0.144	\$0.736	\$0.675	\$0.135	-\$0.009 <sup>2</sup>	\$55.72	\$51.036	\$10.207	\$10.063	\$54.984	\$50.362	\$10.073
Northern Santa Monica Bay Beaches												
Households	\$0.704	\$4.416	\$4.045	\$0.809	\$0.105	\$115.457	\$105.752	\$21.150	\$20.446	\$111.041	\$101.707	\$20.341
Businesses	\$0.006	\$0.031	\$0.029	\$0.006	\$0.000	\$1.464	\$1.341	\$0.268	\$0.262	\$1.433	\$1.312	\$0.262
Total	\$0.710	\$4.447	\$4.074	\$0.815	\$0.105	\$116.921	\$107.093	\$21.418	\$20.708	\$112.474	\$103.019	\$20.603
Santa Clara River												
Households	\$0.090	\$0.692	\$0.634	\$0.127	\$0.037	\$12.578	\$11.521	\$2.304	\$2.214	\$11.887	\$10.888	\$2.178
Businesses	\$0.001	\$0.007	\$0.006	\$0.001	\$0.000	\$0.219	\$0.201	\$0.040	\$0.039	\$0.213	\$0.195	\$0.039
Total	\$0.091	\$0.699	\$0.640	\$0.128	\$0.037	\$12.797	\$11.722	\$2.344	\$2.253	\$12.100	\$11.083	\$2.217
Canyon Lake												
Households	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Businesses	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Total	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Lake Elsinore												
Households	\$0.015	\$0.094	\$0.086	\$0.017	\$0.002	\$2.096	\$1.920	\$0.384	\$0.369	\$2.003	\$1.834	\$0.367
Businesses	\$0.002	\$0.012	\$0.011	\$0.002	\$0.000	\$0.275	\$0.252	\$0.050	\$0.048	\$0.263	\$0.241	\$0.048
Total	\$0.017	\$0.106	\$0.097	\$0.019	\$0.002	\$2.371	\$2.172	\$0.434	\$0.417	\$2.266	\$2.075	\$0.415

**Table 5-5**

**Summary of Cost Impacts on Households and Businesses in 303(d) Areas (In Millions of Dollars)**

Area	Annual Costs in 2008 <sup>1</sup>	2013 No Project Costs				2013 Proposed Regulations Costs						
		Total 2009–2013 Costs		Annualized Costs (in Present Value)		Total 2009–2013 Costs		Annualized Costs (in Present Value)		Change in Costs Relative to No Project Conditions		
		Nominal Costs	Present Value	Average Annual	Increase from 2008	Nominal Costs	Present Value	Average Annual	Increase from 2008	Total 2009–2013 Increase in Costs		Average Annual Increase in Costs
										Nominal Costs	Present Value	
Rainbow Creek												
Households	\$0.078	\$0.558	\$0.511	\$0.102	\$0.025	\$12.451	\$11.405	\$2.281	\$2.203	\$11.894	\$10.894	\$2.179
Businesses	\$0.001	\$0.017	\$0.016	\$0.003	\$0.002	\$0.516	\$0.472	\$0.094	\$0.093	\$0.499	\$0.457	\$0.091
Total	\$0.079	\$0.575	\$0.527	\$0.105	\$0.027	\$12.967	\$11.877	\$2.375	\$2.296	\$12.393	\$11.351	\$2.270
Totals for 303(d) Areas												
Households	\$1.030	\$6.489	\$5.944	\$1.189	\$0.160	\$197.549	\$180.944	\$36.188	\$35.158	\$191.063	\$175.002	\$35.001
Businesses	\$0.011	\$0.074	\$0.069	\$0.013	\$0.002	\$3.227	\$2.956	\$0.59	\$0.579	\$3.154	\$2.888	\$0.577
Total	\$1.041	\$6.563	\$6.013	\$1.202	\$0.168	\$200.776	\$183.900	\$36.778	\$36.316	\$194.217	\$177.89	\$35.578
Notes:												
<sup>1</sup> Costs in 2008 include annualized inspection costs related to normal maintenance of existing OWTS; and design, siting, and installation costs for new and replaced OWTS in 2008.												
<sup>2</sup> Negative cost changes are artifacts of the mathematical calculations used to convert small cost increases to present value dollars.												
Source: Data compiled by EDAW and TCW Economics in 2007 and 2008												

53%. Households would incur the largest share of these costs (91–98%) over the 5-year period; however, businesses are projected to experience a larger percentage increase in costs, with costs increasing by more than 800% over this period. This is due in large part to OWTS installation, operations, and maintenance costs for high-strength waste dischargers that may be required to add supplemental treatment.

Annualized costs statewide over the 5-year analysis period to households and businesses to implement the proposed project would increase from about \$637–\$640 million under future baseline conditions to about \$927–\$976 million under the proposed project, an increase ranging from \$287.0 million (using the CSUC-based method) to \$339.7 million (using the census-based method). These annual costs would be 43–53% higher than under future baseline conditions.

**Case Study Counties.** In Los Angeles County, cumulative costs to OWTS users are projected to increase by \$176.8–\$204.6 million, or by 87–96%, over the 2009–2013 under the proposed project (see Table 5-4). Annualized costs are projected to increase by about \$35–\$41 million under the proposed project.

Cumulative costs to OWTS users in Merced County are projected to increase by about \$21.0 million, or by 52%, over the 2009–2013 under the proposed project. Annualized costs are projected to increase by about \$4.2 million under the proposed project.

**303(d) Areas.** Cumulative costs over the 5-year (2009–2013) analysis period in 303(d) areas are projected to total \$182.6 million, an increase of \$177.2 million over costs under future baseline conditions (see Table 5-5).

Annualized costs in 303(d) areas over the 5-year analysis period are projected to increase from \$1.1 million under future baseline conditions to \$36.5 million under the proposed project, a \$35.4 million increase in costs to households and businesses. The annualized cost increase solely attributable to household OWTS users is projected to increase by \$34.9 million, compared to an increase of \$576,000 for businesses.

Among the 303(d) areas that could be affected by the proposed project, the largest annualized cost increase is projected to occur in the northern Santa Monica Bay beach area (\$20.5 million) and the Malibu Creek watershed area (\$10.0 million). For the remaining 303(d) areas, increases in annual costs relative to future baseline conditions are projected to range from \$413,000 to \$2.3 million.

### 5.4.3 ECONOMIC BENEFITS TO OWTS-RELATED BUSINESSES

The proposed project would generate increased spending on OWTS and OWTS-related services that would benefit OWTS-related businesses throughout California. Businesses that would directly benefit from increased OWTS-related spending and jobs creation include septic system contractors that design and install OWTS, septic tank inspection businesses, testing laboratories that specialize in collecting and testing groundwater and effluent samples, firms that conduct groundwater level determinations, qualified professionals who can prepare OWTS maintenance manuals, and service providers who can monitor and maintain OWTS. Additional jobs would be indirectly generated in many other sectors of regional economies as OWTS-related businesses spend on goods and services needed to conduct their businesses and as their employees spend on consumer goods and services.

This section describes the impacts on OWTS-related businesses and the associated effects on local economies from estimated increases in OWTS-related spending. It should be noted, however, that increased spending on OWTS and related services would have some corresponding reductions in spending on other goods and services, such as home improvements or investment and retirement accounts as households and businesses shift their spending patterns. The effects related to these reductions in spending are not evaluated here.

## **BASELINE CONDITIONS**

### **EXISTING BASELINE CONDITIONS (2008)**

This section summarizes the number of jobs supported annually by OWTS-related spending in California and in the case-study counties under existing baseline conditions (2008), future baseline conditions (2013), and the proposed project.

**Statewide.** Under existing baseline conditions, annual average OWTS-related spending in 2008 is estimated at between \$495.8 and \$510.6 million. This spending is estimated to directly and indirectly support 8,784 full- and part-time jobs. About 3,422 of these jobs are estimated to be directly generated in OWTS-related industries, predominantly in businesses that design, site, and install OWTS and in businesses that inspect septic tanks. The number of businesses statewide that would benefit from this spending is estimated to be 597, including 281 businesses in OWTS-related industries.

**Case Study Counties.** For the case-study county of Los Angeles, OWTS-related spending in 2008 is estimated to support 562 jobs, including 243 jobs in OWTS-related industries. The spending is estimated to directly benefit 18 businesses in OWTS-related industries in Los Angeles County.

In Merced County, jobs supported by OWTS-related spending in the county in 2008 are estimated to support 88 jobs, including 52 jobs in OWTS-related industries. This spending is estimated to benefit 6 businesses in OWTS-related industries.

**303(d) Areas.** As discussed previously, OWTS-related spending for 303(d) areas was assessed only for Los Angeles County. Combined, spending on OWTS in the Malibu Creek watershed area, the northern Santa Monica Bay beach area, and the Santa Clara River (the portion in Los Angeles County) area directly and indirectly would support an estimated 13 jobs in 2008, with about half of these jobs in OWTS-related businesses. This spending is estimated to benefit only a few businesses.

### **Future Baseline Conditions (2013)**

**Statewide.** Under future baseline conditions, OWTS-related spending in California is projected to directly and indirectly support about 12,000 full- and part-time jobs annually over the 2009–2013 period. About 4,700 of these jobs are projected to be directly generated in OWTS-related industries, predominantly in businesses that design, site, and install OWTS and in businesses that inspect OWTS. Annual employment supported by OWTS-related spending under future baseline conditions is projected to be 36% higher than in 2008, with much of this increase attributable to statewide population growth over the 2009–2013 period.

The number of businesses statewide that would benefit from OWTS-related spending is estimated at 814, including 384 businesses in OWTS-related industries.

**Case Study Counties.** For the case-study county of Los Angeles, OWTS-related spending under future baseline conditions is projected to annually support 725 jobs, or 29% more jobs than in 2008. These jobs include 314 in OWTS-related industries. The spending is projected to directly benefit 25 businesses in OWTS-related industries in Los Angeles County.

In Merced County, OWTS-related spending is projected to support 119 jobs, an increase of 35% in OWTS-supported employment compared to 2008. About 70 of these jobs would be in OWTS-related industries. OWTS-related spending is anticipated to benefit 9 businesses in OWTS-related industries.

**303(d) Areas.** Combined, spending on OWTS in the Malibu Creek watershed area, the northern Santa Monica Bay beach area, and the Santa Clara River (the portion in Los Angeles County) area is projected to directly and

indirectly support 16 jobs over the 2009–2013 period, with fewer than half of these jobs in OWTS-related businesses. This spending is estimated to benefit only a few businesses in Los Angeles County.

## PROPOSED PROJECT

The proposed project would generate a large amount of OWTS-related spending by OWTS owners that would in turn benefit OWTS-related businesses and their employees. These beneficial impacts of the proposed project are summarized in Table 5-6 and include an increase in OWTS spending (which would be an increase in gross revenue for OWTS businesses) and the creation of new businesses and jobs needed to provide a variety of services to OWTS owners as OWTS spending increases.

<b>Table 5-6</b> <b>Summary of the Proposed Project's Potential Impacts on Spending, New Businesses, and Employment<sup>1</sup></b>			
Area	Increase in Spending on OWTS <sup>2</sup> (In Millions of Dollars)	Number of New Businesses Created	Number of New Jobs Created
Statewide	377.8	573	8,636
Case Study Counties			
Los Angeles County	40.3	50	786
Merced County	5.0	8	74
Selected 303(d) Areas <sup>3</sup>	32.9	36	551
<b>Notes:</b> OWTS = on-site wastewater treatment systems. <sup>1</sup> Impacts are the totals associated with the change in household and business spending and were estimated using future no-project conditions in 2013 as a baseline. The increase in direct spending shown above would lead to direct, indirect, and induced creation of new businesses and jobs as also reported above. <sup>2</sup> The increase in spending would be an increase in the gross revenue of businesses that supply OWTS-related services and products. These estimates represent the midpoint of the range in spending developed using the CSUC- and census-based methods of estimating the number of households using OWTS (see Section 2.5 for a description of these methods). <sup>3</sup> The impaired water bodies included in these estimates are described in Section 4.1, "Water Quality and Public Health," and shown in Table 5-5. The values shown above for 303(d) areas apply only to impaired areas within Los Angeles County. Additional increases in spending would occur in other impaired areas as shown in Table 5-5 and the statewide total (including spending in Los Angeles County) would be approximately \$35.6 million. Source: Data compiled by EDAW and TCW Economics, 2007 and 2008.			

**Statewide.** Under the proposed project, average annual OWTS-related spending statewide between 2009 and 2013 is projected to increase by \$431.1–\$465.8 million over 2008 spending levels and by \$351.6–\$404.0 million over 2013 future baseline spending levels. This spending would generate increased economic activity in regions throughout California.

The spending generated by implementing the proposed project is projected to annually support an average 19,500 jobs statewide over the 2009–2013 period. Of these jobs, about 7,500 would be in OWTS-related industries with the remainder in other sectors of California's economy. The statewide employment supported by OWTS-related spending under the proposed project would be substantially greater than under 2008 existing baseline conditions and 2013 future baseline conditions. The number of jobs in OWTS-related businesses generated annually by OWTS-related spending is projected to be about 10,700 greater than in 2008, and about 7,500 greater than under future baseline conditions.

Implementation of the proposed project could benefit about 1,310 businesses statewide, including more than 700 new businesses created over the 2009–2013 period. Relative to future 2013 baseline conditions, spending under



the proposed project is projected to support up to about 500 new businesses.. Assuming that the percentage of new business that would fall into the small businesses category (i.e., establishments with fewer than 100 employees) is the same as the existing statewide percentage of businesses in that category (97.7%), about 700 of the new businesses created relative to future baseline conditions would be small businesses.

OWTS-related businesses that would benefit the most are firms that design, site, and install OWTS. Relative to future baseline conditions, this industry is projected to absorb about 24% of the new jobs and about 27% of the new businesses supported by spending under the proposed project. The septic tank inspection and maintenance industries would also receive a relatively large share of the statewide economic benefits of the proposed project. Note that more than half of the new jobs created under the proposed project would be in non-OWTS-related businesses that would indirectly benefit by the spending of OWTS-related firms and the induced spending of employees in directly and indirectly affected businesses.

**Case Study Counties.** Under the proposed project, average annual OWTS-related spending between 2009 and 2013 in Los Angeles County is projected to increase by \$42.6–\$47.4 million over 2008 spending levels and by \$35.4–\$40.9 million over 2013 future baseline spending levels. This spending is projected to annually support an average of 1,440 jobs, including 610 in OWTS-related industries, in Los Angeles County. About 33% of the total jobs would be in industries that design, site, and install OWTS and that conduct groundwater monitoring. Relative to the 2008 existing baseline, OWTS-related spending would support about 880 new jobs, potentially leading to the creation of up to 60 new businesses, including 57 small businesses, in the county. Relative to 2013 baseline conditions, new economic activity in Los Angeles County would include about 720 new jobs and up to 45 new businesses.

In Merced County, average annual OWTS-related spending between 2009 and 2013 under the proposed project is projected to increase by \$5.8–\$5.9 million over 2008 spending levels and by \$4.1–\$4.2 million over 2013 future baseline spending levels. This spending is projected to annually support an average of about 190 jobs, including about 110 in OWTS-related industries, over the 2009–2013 period. About 46% of the total jobs would be in industries that design, site, and install OWTS and that conduct groundwater monitoring. Relative to the 2008 existing baseline, OWTS-related spending would support about 100 new jobs, potentially leading to the creation of up to 11 new businesses, all of which would be small businesses, in the county. Relative to 2013 future baseline conditions, new economic activity in Merced County would include a projected 68 new jobs and up to 7 new businesses.

**303(d) Areas.** Combined and average spending on OWTS in the Malibu Creek, Northern Santa Monica Bay Beaches, and Santa Clara River (the portion in Los Angeles County) 303(d) areas under the proposed project is projected to increase annually by \$31.9 million over 2013 future baseline spending levels. This spending is projected to annually support an average of 564 jobs over the 2009–2013 period, with 42% of these jobs in OWTS-related businesses. Because of the proposed project's requirement that OWTS with supplemental treatment units must be used within 600 feet of certain types of impaired water bodies, the regional economic effects resulting from OWTS-related spending in Los Angeles County's 303(d) areas would be relatively high. Compared to 2008 existing baseline conditions, employment is projected to increase by 551 jobs, potentially creating 36 new businesses. Effects relative to 2013 future baseline conditions would be similar, with spending in 303(d) areas under the proposed project projected to support 548 additional jobs and up to 36 new businesses in Los Angeles County.

Based on cost estimates prepared for the other 303(d) areas in California, the regional economic effects resulting from OWTS-related spending in 303(d) areas would be higher in Los Angeles County than in state's other counties.

## 5.4.4 ECONOMIC BENEFITS FROM IMPROVED WATER QUALITY

As described in Section 4.1, “Water Quality and Public Health,” surface water and groundwater quality are expected to improve with implementation of the proposed project, most notably in 303(d) areas where OWTS are contributing to impairment, and more generally throughout the state where OWTS are currently found and will be located in the future. The improvements to water quality are expected to have the following effects related to beneficial uses:

- ▶ reduce the number of beach closures and advisories caused by high bacterial levels in 303(d) impaired water bodies, where OWTS are major contributors to impairment;
- ▶ reduce public health costs from contact with high levels of bacteria and other micro-organisms during water contact recreation activity; and
- ▶ by reducing the amount of nutrients entering surface water bodies, reduce excessive levels of algae that could impair fish and wildlife habitat and that present a nuisance, impairing aesthetics and recreation values of affected 303(d)-listed water bodies.

Estimating the monetary value of these beneficial use effects is greatly limited by available data and by uncertainties about specific effects on beneficial uses from changes in water quality caused by the proposed project. An additional analytical challenge is that contaminants from OWTS may be one of several sources of contaminants that contribute to beneficial use restrictions, making it difficult to attribute water quality benefits to operational improvements to OWTS related to the proposed project. For example, in most watersheds, OWTS are just one contributor to impairment along with such other contributors as agricultural-related fertilizer and chemical use, runoff from urban, municipal and industrial land uses, and in some areas, discharges from treatment plants. For some beneficial uses, useful information is available on the frequency of OWTS-related incidents (e.g., beach closures) and on the current economic value of affected beneficial uses, but the impact of the proposed project on these uses and values is highly uncertain.

Beach closures and advisories represent one effect that is relatively tractable. OWTS have been identified as a primary source of contaminants affecting beach activities near Malibu and along northern Santa Monica Bay. According to information compiled by the Natural Resources Defense Council (2007), various beach closures or advisories were in effect on an equivalent of 487 days during 2006. These closures and advisories directly contribute to lost beach days and to reduced values for beachgoers who do visit. Based on information from Hanemann et al., improving the water quality at Malibu Surfrider Beach, which accounted for 30% of the beach closures and advisories along northern Santa Monica Bay beaches in 2006, from a grade of C to B would increase benefits to beachgoers by an estimated \$140,000 annually. (The water quality grades used in the analysis are part of an A-to-F scale developed by the Heal the Bay Association.)

Exposure of beachgoers to high bacterial levels also incurs public health costs measured in terms of increased incidences of bacterial-related illnesses. For example, a study of public health costs related to exposure to polluted marine waters in Orange County, California, found that exposure to polluted waters at Newport and Huntington Beaches was responsible for nearly 75,000 episodes of gastrointestinal and other types of bacterial-related illnesses, with an annual public health cost of about \$3.3 million (in 2001 dollars). Data on illness severity and estimates of annual salaries and medical costs for residents of Orange County were used to derive the estimates. Although pollutant sources other than OWTS were primarily responsible for the adverse public health impacts in Orange County described above, this example demonstrates some of the notable and adverse economic effects that bacteria-related illnesses can cause.

Excessive levels of nitrates and other nutrients can impair drinking water, causing odor nuisance and public health concerns. Cost savings associated with removing contaminants from drinking water supply systems is another form of use benefit. Although the extent to which nitrates from OWTS impair drinking water supplies is unknown

and varies from watershed to watershed, treating water supplies already contaminated with nitrates is costly. According to information published by the Pennsylvania State Department of Agricultural and Biological Engineering (2004), the initial cost of reverse osmosis home systems used for treating nitrates is between \$300 and \$900, and does not include the high energy costs for operation. Unit costs for distillation systems range from \$150 to \$500 per unit. The extent to which reduction of nutrients from OWTS could prevent the need for nitrate treatment systems at private wells or reduce treatment costs at centralized plants is unknown, but given the large number of water bodies statewide that are sources of drinking water supplies and are also listed as potentially impaired for nutrients, the cost savings could be substantial.

In addition to direct and indirect effects on beneficial uses, water quality improvements from the proposed project can be expected to contribute to healthier functioning aquatic ecosystems. Meeting water quality standards designed to protect beneficial uses is likely to contribute to the overall health and diversity of aquatic and terrestrial species, including improving conditions for the successful recovery of some threatened and endangered species. The economic literature (see, for example, the EVRI database—a database of economic valuation studies referred to as the Environmental Valuation Reference Inventory) includes hundreds of empirical studies that demonstrate the public's substantial willingness to pay for programs and policies that enhance fish and wildlife habitat and lead to sustainable fish and wildlife populations. As discussed in EPA's (1997) economic assessment of the California toxics rule, empirical evidence from review of the extensive literature indicates that non-use values associated with improved water quality and/or fisheries have been estimated to be at least half as much as relevant recreational values, thereby leading to development of a "50% rule of thumb" estimate for nonuse values.

In summary, the proposed project is expected to substantially improve water quality conditions at certain 303(d)-listed water bodies and potentially contribute to water quality improvement at nearly 300 additional water bodies where OWTS are believed to be contributing to impaired water quality. Less notable but beneficial water quality improvements would also occur throughout the rest of the state where OWTS are used. Most impaired water bodies, including Northern Santa Monica Bay beaches, Santa Clara River, Canyon Lake, and the Malibu Creek watershed, support substantial numbers of recreationists participating in both water contact and noncontact water recreation activities. In addition, some of these water bodies are important sources of municipal and domestic water supplies. Although the total benefits of water quality improvements are difficult to quantify because of the large volume of affected areas and associated beneficial uses and the contribution of a variety of sources to impairment, the proposed project could lead to fewer beach closures and advisories, and substantial reductions in public health costs related to exposure to high bacteriological conditions. Such beneficial effects and their associated beneficial economic impacts would likely be most notable in such impaired areas as the Malibu and Santa Monica Bay beaches where OWTS are the major contributor to impairment. The proposed project could also help reduce drinking water treatment costs where excessive nitrates are found in water supplies and help improve fish and wildlife habitat conditions and aesthetic conditions for recreation.

While placing a dollar value on these project-related water quality improvements is very difficult and too speculative given the lack of data and limited ability to isolate the incremental effects of the proposed project relative to other pollution sources, one thing is clear: people in general, and the residents of California in particular, place a high value on protecting and improving our water quality. California has a current population of more than 35 million, by far the most populated state in the country. Its economy is often cited as the sixth or seventh largest in the world. Surveys consistently show that state residents consider protecting the environment among the most important public policy priorities. In fact, state residents have approved over the past 10 years more than \$3 billion in bond measures specifically earmarked for programs to improve environmental conditions. In addition, contingent valuation studies have shown that residents are willing to pay substantial amounts annually to protect water quality and other environmental conditions.

A seminal study (Carson and Mitchell 1993) conducted in the 1980s and often cited in support of water quality programs examined the public's willingness to pay for achieving different levels of water quality. Based on results of a nationwide survey, the benefits of achieving the national swimmable water quality goal for the nation's surface waters was estimated at \$29.2 billion a year (1990 dollars). A similar study (Freeman 1982)

found the benefits of achieving the ambient quality conditions believed to be associated with meeting best available technology provisions of the Clean Water Act to be about \$20.billion a year (1990 dollars).

Although drawing inferences about the water quality benefits of the Proposed Regulations from these studies and from the public's willingness to approve and pay for environmental bond measures is necessarily limited, the evidence does suggest that residents of California place a high premium on environmental quality. Residents have consistently demonstrated a willingness to pay for major programs that provide the types of environmental improvements that the draft regulations are expected to contribute to.

#### **5.4.5 EFFECTS OF THE PROPOSED PROJECT ON PROPERTY VALUE AND REAL ESTATE TRANSACTIONS**

Transaction costs and timing requirements for the closing of real estate transactions in 303(d) areas are not expected to be affected by the proposed project. Based on the draft regulations, the reporting of water quality monitoring data to the State Water Board would result in either minor or no effects on real estate property transactions since the addresses or specific locations where samples are taken will not be available to the public, except in cases where a domestic well is found exhibiting pollution from human activities. In such cases, the quality of the water would be required to be reported in the real estate property disclosure statement. However, earlier drafts of the draft regulations required water quality monitoring data to be reported to the State Water Board at the point of real estate transactions; this requirement was deleted from the draft regulations, removing a potential impediment to the timely closing of real estate transactions. Nevertheless, there could be minor adverse effects on property values in non-303(d)-listed areas where the draft regulations are more environmentally protective than existing regulations, but such effects are not expected to be extensive. For example, if the vertical separation to groundwater requirement in the draft regulations were more protective than existing vertical separation requirements enforced by local agencies, then the proposed project could restrict development on some lots or require new development to use OWTS with supplemental treatment units. However, based on the regulatory comparison summarized in Chapter 3 of this DEIR, such situations are not expected or would be rare.

The proposed project could also cause property value effects because the 3 foot vertical separation to groundwater requirement included in the draft regulations for conventional systems may indirectly lead to changes in the 5 foot vertical separation to groundwater requirement that is most commonly applied to conventional systems by local and regional agencies under existing conditions (as noted by the regulatory comparison in Chapter 3). This possible consequence would only occur in those agency jurisdictions that decide to relax their existing vertical separation requirements after the draft regulations are implemented. Because the draft regulations would allow local regulations to differ from the new requirements of the statewide regulations if they are more environmentally protective, local and regional agencies may decide not to relax their vertical separation requirements. For example, many local agencies may maintain their existing 5 foot separation requirements for conventional systems if they feel this protects groundwater quality better than the 3 foot separation requirement in the draft regulations. If some agencies do decide to relax such requirements, some lots that are not buildable under existing regulations may become buildable (which could increase the value of the lots), or perhaps the developers of lots could use less expensive conventional systems instead of OWTS with supplemental treatment systems. The possible adoption of new regulations by a local or regional agency would be subject to its own CEQA compliance and general plan consistency reviews. If this potential chain of events were to occur, the proposed project would only contribute to such impacts in a very indirect manner and it is too speculative to estimate what these specific effects would be.

### **5.5 FINANCIAL ASSISTANCE FOR PROPERTY OWNERS**

As stated in Assembly Bill (AB) 885, it was the intent of the California Legislature to encourage financial assistance to existing OWTS owners that incur costs as a result of the new statewide regulations required by AB 885. Included as Section 13291.5, AB 885 states:

It is the intent of the legislature to assist private property owners with existing systems who incur costs as a result of the implementation of the regulations established under this section by encouraging the state board to make loans under Chapter 6.5 (commencing with Section 13475) to local agencies to assist private property owners whose cost of compliance with these regulations exceeds one-half of one percent of the current assessed value of the property on which the onsite sewage system is located.

The funding source referred to in AB 885 is the 1987 State/Federal EPA Clean Water Program modification to the Clean Water Act, which created the State Revolving Fund (SRF). The SRF is the major funding source available to help local and municipal governments with funding for water quality protection as well as funding for OWTS owners to address existing OWTS problems. It is funded by Federal Capitalization Grants that are matched by the state. The state uses the SRF to make low-interest loans for water pollution abatement and must make the loans to a public, special district, city, town, or conservation organization. Typically, the SRF Program has available \$200 to \$300 million to loan on an annual basis. While the amount available fluctuates from year to year, the SRF has always had funds available, especially at the beginning of the state's fiscal year. Loans are presently for 20-year periods; however, the State Water Board may extend the time limit in the future. The interest rate is equal to one-half the current state General Obligation Bond Rate, usually ranging from 2.5 to 3.5%.

## **5.6 FISCAL IMPACTS AND RELATED PUBLIC SERVICES**

Fiscal impacts on state, regional, and local agencies could result from changes in OWTS-related regulations by requiring agencies to devote more resources to implementing new or more-intensive OWTS-related regulations. For example, changes in regulations could require agencies to spend more staff time and budget on OWTS siting and inspection issues, permit review and issuance actions, system monitoring activities, and reporting requirements. As discussed below, the proposed project is anticipated to result in minimal fiscal effects on agencies.

### **5.6.1 EFFECTS OF THE PROPOSED PROJECT ON LOCAL AGENCIES**

Implementation of the draft regulations would not change the existing OWTS regulatory and permitting process at the regional and local level. Specifically, implementation of the draft regulations would not affect the existing processes for issuance of WDRs and WDR waivers, or the need to comply with Regional Water Board basin plans. In addition, implementing the draft regulations would not change the way new systems are regulated by county agencies in conjunction with building permits. Although local and regional government agencies have expressed concerns about how earlier versions of the draft regulations would increase their staffing needs and costs for implementing new regulatory requirements, the draft regulations are anticipated to be largely self-implementing. The draft regulations would minimize agency staffing and cost effects by requiring OWTS owners to comply with the new regulations, as they follow the existing permit processes of their local and regional agencies, rather than requiring local and regional agencies to do new regulatory oversight, tracking, monitoring, and reporting activities. Additionally, the number of new OWTS permits required to be issued by local and regional agencies under the proposed project is not expected to change relative to future baseline conditions.

Another major source of concern expressed by local agencies during the drafting of the draft regulations was that the proposed project could potentially generate a demand by the public to access the new water quality monitoring database that would be established by the draft regulations. This database, however, would be maintained by the State Water Board rather than local or regional agencies. Members of the public seeking water quality monitoring data would be able to obtain data from public Web sites but would not be able to determine the specific location or address from which a sample was taken.

### **5.6.2 EFFECTS OF THE PROPOSED PROJECT ON STATE AGENCIES**

The State Water Board does not anticipate the need to increase staffing levels beyond existing needs to support implementation of the proposed project (Giannopoulos and Thompson, pers. comm., 2007). While the proposed

project could generate more sales and income tax revenue for the state, as revenues increase for OWTS-related businesses and jobs are created, such tax revenue would decrease if OWTS owners reduce their spending on other items (like home improvements) that benefit California businesses and employees in other industrial sectors. The fiscal effects of the proposed project on state agencies are therefore anticipated to be minor relative to existing and future baseline conditions.

### **5.6.3 EFFECTS OF THE PROPOSED PROJECT ON FEDERAL FUNDING OF STATE PROGRAMS**

Implementation of the proposed project is not anticipated to adversely affect federal funding of state programs.